**Temperature & Humidity Sensor**

The ESP8266 microcontroller was programmed using the Arduino IDE to collect both temperature and humidity data from a DHT11 sensor. The device connects to a WiFi network and publishes sensor readings to a public MQTT broker hosted at 'test.mosquitto.org'. Every 3 seconds, the DHT11 sensor measures temperature and humidity. Each value is compared against predefined threshold levels and classified into status categories:

Temperature thresholds:  
- Safe: ≤ 15°C  
- Caution: 15°C – 20°C  
- Warning: > 20°C

Humidity thresholds:  
- Safe: ≤ 60%  
- Caution: 60% – 70%  
- Warning: > 70%

The ESP8266 publishes two separate JSON messages to MQTT topics:  
- Temperature → devices/NAPIoT-P2/anelieb  
- Humidity → devices/NAPIoT-P2/anelieb12

Example temperature payload:  
{"temperature": 22.5, "status": "Warning"}  
Example humidity payload:  
{"humidity": 68.0, "status": "Caution"}

FlowFuse receives the JSON data using MQTT input nodes and passes them through JSON decoder nodes. Each decoded payload is handled by a function node that splits the message into two outputs:  
- The numeric value to a gauge  
- A status string to a notification or text widget

A second function node processes the `status` field and generates a formatted message based on the threshold level. This design ensures clear, user-friendly monitoring of both temperature and humidity values on the dashboard.

The final dashboard contains the following widgets:  
- A gauge for real-time temperature readings  
- A gauge for real-time humidity readings  
- A text and notification panel for each to alert the user

**Temperature:**

A screenshot of a computer

Description automatically generatedA screen shot of a device

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A screenshot of a computer

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**Humidity:**

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